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Original article

# Influence of socioprofessional category on the duration of sick leave after hallux surgery. A prospective study of 102 cases



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## ABSTRACT

**Introduction:** Surgery of the forefoot including the hallux involves procedures on one bone or more. Usually bone union occurs within 45 days after surgery. During convalescence, the patient can gradually return to his/her activities. The duration of sick leave (SL) can be used to evaluate the influence of convalescence on professional life. The goal of this study was to evaluate the influence of the socioprofessional category (SPC) on the duration of SL after surgery of the forefoot including the hallux.

**Patients and methods:** This was a single center, single surgeon prospective cohort study performed between January 2012 and March 2013. It included working patients over 18 who underwent hallux surgery associated or not with surgery of the lateral rays. A standardized questionnaire was filled out during the postoperative day 45 consultation to determine factors that could influence the duration of sick leave. Regression models (Cox model) were used to identify variables associated with the duration of sick leave.

**Results:** Among the operated patients, 102 were included and divided into 5 SPC. SL lasted a mean 45 days (from 8 to 90 days). The only predictive factors for the duration of SL on multivariate analysis using SPC 2 as a reference were SPC and the VAS (Visual Analogue Scale). The mean duration of SL was 15 days for SPC 2, 35 days for SPC 3, 47 days for SPC 4, 50 days for SPC 5 and 67 days for SPC 6.

**Discussion–Conclusion:** The distribution of SPC was comparable to that of the working population in the Île de France. The SPC appears to be a predictive factor for the duration of SL after hallux surgery. Severe pain seems to increase the duration of SL. Surgeons and patients should be informed accordingly.

**Level of evidence:** Level IV.

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## 1. Introduction

In France, more than 10,000 hallux operations are performed annually. Surgery of the forefoot including the hallux involves several bones. The postoperative outcome and the process of initiating weightbearing depend on the type of surgery and the surgeon's usual practices [1,2].

For the moment, the development of less invasive techniques has not resulted in a faster return to activities [3]. Bone union usually occurs within 45 days and the risks of mechanical complications are greatest during this period. Fear of weightbearing varies

from one patient to another and influences the length of time necessary to walk normally again, and begin non-traumatic daily and professional activities.

The duration of sick leave (SL) provides an indication of the impact that convalescence has on professional life and indirectly on the patient's social life. It is often difficult to precisely predict how long postoperative SL will be, because it is multifactorial. The socio-professional category (SPC) has been shown to affect the duration of SL for other diseases [4–7]. However, there are probably other predictive factors of the duration of SL. It is important to be aware of them to inform patients and perhaps influence the duration of the SL, thus reducing the costs of this disease to society and to the professional sector.

The goal of this study was to evaluate the influence of the different factors, in particular SPC on the duration of SL after surgery of the forefoot including the hallux.

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## 2. Materials and methods

This was a single center, single surgeon prospective cohort study performed from January 2012 to March 2013 including working patients over 18 who underwent surgery of the hallux (metatarsal osteotomy ± phalangeal, metatarsophalangeal arthrodesis) associated or not with the lateral rays (lateral metatarsal osteotomies, interphalangeal arthroplasties, tendon lengthening or transfer). Rest with the foot kept up and restricted total weightbearing was recommended for the 8 first days, then walking in jogging shoes was allowed for all patients, except those who had undergone metatarsophalangeal arthrodesis who wore a postoperative boot for six weeks. Sick leave was prescribed until the control consultation on postoperative day 45, but patients were allowed to return to work after 15 days. A standardized questionnaire was filled out during the pre- and postoperative consultations (Appendix A). Patients who had not returned to work were contacted by telephone one month later on the (75th day). When both feet were operated within a short period (7–14 days), the duration of the SL was counted from the day of the first intervention. Univariate and multivariate semi-parametric Cox regression analyses were performed to identify variables associated with the duration of SL. The dependent variable was the duration of SL. The independent variables were: age, type of surgery, uni- or bilateral surgery, type of hospitalization (hospitalization or ambulatory), the maximum level of pain felt (visual analogical scale) (VAS) noted 8 days after surgery by the nurse during the first bandaging session, the SPC (level 1 of the SPC 2003 [professions and socioprofessional categories] from INSEE [Institut national de la statistique et des études économiques]), and the means of transportation to get to work. The variables that were found to be associated in univariate models ( $P < 0.2$ ) were used in the multivariate model. Survival time with return to work was used as the event of interest and the

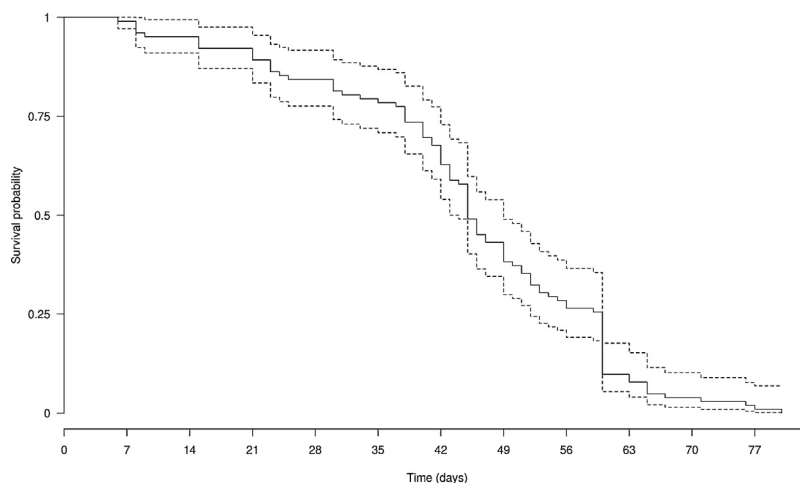
delay between surgery and returning to work were computed with Kaplan-Meier estimator.

## 3. Results

One hundred and two of the 416 patients who underwent surgery during this period were working and were included in the study. All of the other patients were retired or not working. Mean age was 52 years old. Interventions on the hallux included 96 scarf osteotomies (94%) associated in 82 cases with an osteotomy of the first phalanx and 6 metatarsophalangeal arthrodeses (6%). One or more lateral metatarsal osteotomies were performed in 12 cases (12%) and one or several interphalangeal arthroplasties in 24 cases (24%). These tendon operations were not taken into account. Only one foot was operated on in 68 cases (67%) and both feet 7 to 14 days apart in 34 cases (33%). The delay between operations was 7 days for 26 patients (76%) and 14 days for 8 (24%). Surgery was ambulatory in 76 cases (75%) and with two nights of hospitalizations in 26 cases (25%). The mean maximum pain during the 8 days after surgery was 3 (0–8). It was considered to be moderate (0–3) in 78 cases (76%), strong in 21 cases (21%) and severe in 3 cases (3%). The distribution of the different SPC is shown in Table 1. The trip to work took a mean 38 minutes. The type of transportation was walking or biking in 13 cases (13%), mass transit in 66 cases (65%) and car in 23 cases (22%). Specific types of shoes were needed in 8 cases (8%). SL lasted a median 45 days (minimum 6 days, maximum 90 days). Survival times are shown in Fig. 1: 5% of the patients returned to work by the 2nd week, 15% by the 4th, 43% by the 6th, and 83% by the 8th. Multivariate analysis showed SPC and maximum pain to be associated with the duration of SL (Fig. 2). The mean duration of SL in relation to the SPC and the relationship with instantaneous risk (hazards ratio) are shown in Table 1. The relationship of instantaneous risk to the VAS was 0.90 (0.81–0.99;  $P = 0.039$ ). The variables of age,

**Table 1**  
Distribution of operated patients into socioprofessional categories (level 1).

Code	Level 1 – List of socioprofessional categories	Number	Mean sick leave (days)	Hazards ratio
2	Artisans, skilled craftsman, merchants/entrepreneur commerçants et chefs d'entreprise	3	15	Reference category/catégorie de référence
3	Executives and high level intellectual professionals professions/et professions intellectuelles supérieures	19	35	0.12 $P = 0.003$
4	Middle level professionals	35	47	0.07 $P < 0.001$
5	Employees	44	50	0.05 $P < 0.001$
6	Routine occupations	1	67	0.002 $P = 0.001$



**Fig. 1.** Survival without return to work.

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